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# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

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DOGM  
MINERALS PROGRAM  
FILE COPY

May 20, 1992

Mr. David I. Hodson  
General Manager  
Barney's Canyon Mine  
8200 South 9600 West  
PO Box 311  
Bingham Canyon, Ut 84006-0311

Dear Mr. Hodson:

Re: Initial Completeness Review, Permit Revision/Project Expansion, Kennecott Utah Copper, Barney's Canyon Mine, M/035/009, Salt Lake County, Utah

The Division has completed its initial review of Kennecott's permit revision/project expansion for the Barney's Canyon Mine. We received the original application on December 19, 1991, and supplemental information on March 24, 1992. Our review comments outline noted plan deficiencies, in chronological order, with reference to the specific section of the Minerals Rules. Please prepare your response in the same manner using a similar format.

## R647-4-105. Maps, Drawings & Photographs

### **105.2 - Border Outlining acreage**

The maps need to contain a border which clearly delineates the disturbed area boundaries of areas currently included in the mine permit and areas to be included under the revision. (AAG)

### **105.3 - Maps, drawings or cross-sections**

The Division will require that more information be incorporated into the operation phase and final reclamation treatments maps. This information should show the drainage configuration for both phases and the location of sediment treatment devices (silt fences, straw bales, ponds, etc.). All disturbed area

drainage should be treated before being allowed to commingle with undisturbed drainage. (HWS)

Please indicate the location of the existing Melco sediment impoundment. Please label all named drainages on the maps showing drainage control structures. Please show the locations of the existing sedimentation dams located in the Dry Fork channel below the waste dump which collect sediment from the roadside ditches (refer to section 3.8.3, page 23). Please show the location of the impoundment(s) created by the B&G grade. (AAG)

The operator needs to provide typical cross sections/diagrams of the North BC South, South BC South and Melco pits during operations and after reclamation. All disturbed area slopes steeper than 3h:1v must be labelled on the reclamation treatments map. (HWS)

#### **R647-4-106. Operation Plan**

##### **106.2 - Type of Operation Conducted**

The pits are to be developed with benches 20 feet wide and safety catch benches 27 feet wide every 60 feet. Are all working benches 20 feet wide? Is the vertical distance between all benches 60 feet? Please clarify the spacing and placement of benches to be used in the new pit designs.

The submittal described the rock mechanics study regarding the pit design(s) as being compiled and preliminarily interpreted by Kennecott engineers. Has an additional or final interpretation been made which is different from the preliminary interpretation? (AAG)

##### **106.3 - Estimated acreage**

Section 7.0, page 38, describes the net disturbed acreage of this submittal as an addition of 26.7 acres. Please provide a breakdown of this acreage figure (i.e., pits, dumps, roads, etc.). This breakdown should also be illustrated by disturbed area boundaries drawn on the maps. (AAG)

#### **106.4 - Nature of materials including waste/overburden and estimated tonnage**

Kennecott has committed (March 17, 1992 letter) to performing an evaluation of typical waste material, generated during mining from the North BC South and South BC South pits. The evaluation should indicate the acid-producing potential of the material. If acid-producing potential is perceived to be above normal, then a metals analysis must be performed as well.

The original data from the Melco pit, describing the nature of the Melco waste material will be accepted by the Division. However, we cannot accept the extrapolation of this data to the other two proposed pits.

The operation plan states that carbonaceous ore will be placed in the Melco dumps and covered with waste rock if it cannot be processed. Before this material may be placed on the waste dumps, Kennecott must demonstrate that this material has no adverse leachate generating potential or other deleterious characteristics that could negatively impact local surface and ground water resources and/or inhibit final revegetative efforts. The Division suggests a minimum three (3) foot depth of waste rock coverage for this material.  
(AAG/DWH)

#### **106.6 - Plan for protecting and redepositing existing soils**

Section 4.3, page 26, states that salvaged topsoil will be replaced as described in section 3.7. Section 3.7 describes estimated salvageable topsoil only and does not describe redeposition. Please commit to topsoil placement.

Section 3.10, page 25, lists areas for two topsoil stockpiles (A & B). Please label each stockpile accordingly on Plate II. (AAG)

#### **106.8 - Depth to groundwater, overburden material & geologic setting**

Section 3.1, page 14, states that "minor" amounts of perched water were encountered in the South BC South pit location during drilling. Please describe the geologic setting of perched aquifers and the quantities of water encountered. (AAG)

## **R647-4-107. Operation Practices**

### **107.1.15 - Construction of berms, fences**

Please clarify how safety berms will be located 27 feet from the bench face to provide a 14 foot impact zone when the safety bench is 27 feet wide (see page 16 of submittal). (AAG)

### **107.2 and 107.3 - Drainages to minimize damage and Erosion Control**

It is unclear that the operator has designed the drainage plan such that excess erosion is prevented/controlled, and that disturbed area drainage is treated prior to co-mingling with undisturbed area runoff. Drainage patterns need to be better defined on the operator's operational and reclamation treatments maps. What runoff control measures will be implemented on the new site disturbances? If drainage will be passed through sediment control structures (e.g., settling/detention basins, sediment ponds, straw bales, silt fences, etc.), where will these structures be located? The maps/plates should clearly show where these control measures will be utilized.

Page 22, 3.8.2, Operational Runoff Control - describes the use of culverts and roadside ditches as a means of controlling runoff and erosion. However, no discussion of erosion control measures are described/indicated for the discharge ends of the bypass culverts. Again, pretreatment of undisturbed area drainage and erosion control are of concern prior to discharge into the undisturbed area drainages. (HWS/AAG/DWH)

Section 3.8.3, page 23, in the description of the BC South dump a reference is made to section 3.7.2. No such section was found in the submittal. Please clarify. (AAG)

### **107.4 - Deleterious materials safely remove or isolate**

Kennecott has committed (March 17, 1992 letter) to blending South BC South and North BC South pit development wastes high in sulfides with calcareous wastes prior to dumping, to prevent the development of acid conditions in waste dump material. This commitment should be extended to include any such materials encountered in the Melco Pit expansion.

Kennecott must develop a plan for the safe storage of sulfide ores which have been encountered at the Melco Pit, and which may be encountered at other pits on-site. The Division of Water Quality has pointed out that storage sites for such ores now exist on-site and are not isolated adequately. The operator will have to obtain an approved plan from DWQ, for these sulfide ore storage areas, and incorporate such a plan into this plan revision. (HWS)

#### **R647-4-109. Impact Assessment**

##### **109.1 - Surface & groundwater systems**

The operator must evaluate potential impacts on groundwater from the accumulation of water in the Melco, North BC South and South BC South pits. This could be accomplished by providing analysis of groundwater associated with the pits, and from the already existing Barney's Canyon Pit. Also, will any accumulated pit water pose a danger to wildlife, which may utilize the water?

What impacts may result from disturbed area drainage into undisturbed stream channels associated with the Barney's site? How will negative impacts (if any) be mitigated? (HWS)

##### **109.2 - Wildlife habitat and endangered species**

Describe any impacts to existing/critical wildlife habitat associated with this operation? Are there big game species (deer/elk) found in the area which may be adversely impacted by the operation? If so, how will these impacts be mitigated. (HWS)

#### **R647-4-110. Reclamation Plan**

##### **110.2 - Roads, highwalls, slopes, leach pads, impoundments, drainages, pits, trenches, ponds, drill holes, etc. will be reclaimed**

Kennecott's current responses and justification concerning the possibility of backfilling all or portions of the proposed/existing pits, do not support a variance to highwall elimination requirements. Therefore, due to the close proximity of the South BC South and North BC South pits, the Division will

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require backfilling of one or the other. Also, should water quality and/or wall rock analyses demonstrate the potential for generation of deleterious pit water, the Division will require that those pits are at least, partially backfilled to the point of being non-impounding.

Slopes greater than 3:1 will require additional surface stabilization controls to ensure revegetation success and reduce erosion. - HWS

Benches of the pits that will not be backfilled and are greater than 20 feet in width must be reclaimed. Please revise your plan to include this commitment. (HWS)

The slopes of the 7040, 7200 and 7140 East dumps are proposed to be left at angle of repose because regrading to a lesser angle will disturb additional watershed area. With the dump enlargement proposed by the expansion of the Melco pit, the drainage will now be heavily impacted. Therefore, regrading the dump slopes to a less steep angle (ie., 2H:1V) will be required by the Division. The Division believes the dump outslope extension and resulting loss of undisturbed area, will be an acceptable trade off in the long run by increasing the level of revegetation success.

The same or similar revegetation requirements/techniques as outlined in the Division's previous approval for the Melco dump slopes will apply upon final reclamation. The original plan called for these dump slopes to be reclaimed by constructing benches along the dump every 100 vertical feet to allow access for hydroseeding of the outslopes. Hand placement of tree and shrub tublings would still apply to these dump slopes (AAG/HWS/DWH).

### **110.3 - Surface facilities to be left**

The operator has committed to contacting (March 17, 1992 letter) the Division of Water Rights/Dam safety in relation to construction and final disposition of the BC South dump.

### **110.5 - Revegetation planting program and topsoil redistribution**

No planting program has been developed for the Melco 7040 and 7140 waste dumps. These dumps must be stabilized and reseeded using an updated seed mix. An improved method of slope surface stabilization may be required to aid

in plant establishment. The operator needs to include more grass species in the seed mix found in Table 5.4-1. Please refer to the attached revised seed mix recommendations. (HWS)

#### **R647-4-111. Reclamation Practices**

##### **111.3 - Erosion control - sediment**

On page 34, 5.5.2, the plan states that revegetation will be the most effective means of sediment control from disturbed areas. Use of water bars on regraded haul/access roads is also proposed to minimize sediment loss and control erosion. Continued use of temporary sediment control measures will be required during the time period between reclamation and successful revegetation establishment. Sediment loss should be controlled as close to the contributing source as possible/practicable. Minimizing downgradient/offsite sediment transport is critical.

#### **R647-4-112. Variance**

The operator has requested a variance to reclamation of the pits. It is the Division opinion that the operator has not provided sufficient justification to grant a **full** variance on the pits. Limited backfilling of pits and/or some revegetation on accessible benches (> 20 ft. width) will likely be required. A **partial** variance may be negotiated (e.g., retopsoiling, 70% revegetation std., etc.) however, a full variance to pit reclamation is denied at this time. (HWS/DWH)

The operator has requested a variance to eliminate regrading the Melco 7040, 7200, and 7140 East dump slopes. The proposal states that this variance was previously approved by the Division. The original variance request was to eliminate regrading of the 7200 and 7100 dump slopes. This original variance was approved for two dump slopes not three. As discussed under section R647-4-110.2 above, the Division hereby rescinds its previous variance approval due to changes in the circumstances/conditions of the original approval. A **partial** variance is granted which will not require the operator to salvage or reapply topsoil to these dump slopes. The 70% revegetation success standard would also

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not apply to these slopes. However, the Melco dump slopes must be regraded to a minimum 2H:1V configuration and revegetated according to the requirements as outlined under the original plan approval. (AAG/HWS/DWH)

#### **R647-4-113. Surety**

The disturbed acreage breakdown and disturbed area maps will need to be received and reviewed in order to determine if the reclamation cost estimate provided is adequate. The acreage breakdown will provide a basis for comparing the average cost of \$3604/acre provided by Kennecott. Also, please provide the rationale for the reclaimed acreage figure for the original plan of 629.7 acres (i.e., define areas and acreage not reclaimed but disturbed). (AAG)

#### **R647-4-115. Confidential Information**

The operator has submitted some confidential information which has been filed in the Division's confidential files.

#### **R647-4-118. Revisions**

The Division has determined that this permit change application must be categorized and processed as a permit **revision**. This means that upon tentative approval of the application, a 30-day public notice/comment period will be published by the Division. Upon successful completion of this public notice timeframe and submittal of the revised surety amount, the Division will be prepared to grant final approval of the proposed project expansion.

#### **GENERAL COMMENTS/REQUIREMENTS:**

##### **Overall Barney's Canyon Plan Review**

1. In Kennecott's March 17, 1992 response letter, a commitment is made to provide a revised, updated and consolidated mining and reclamation plan sometime after this plan revision receives Division approval. Because the response fails to give




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an anticipated timeframe for providing the consolidated revised plan, the Division hereby establishes a tentative deadline of 90 days following the date of the Division's final approval of this permit revision.

2. When preparing future permit amendment/revision applications (which make reference to information found in a previously approved plan), please include a copy of same, or list the appropriate volume, section, page number, etc., to assist the reviewer in locating the pertinent information in a timely manner.

Thank you for your patience and cooperation in completing this permitting action. If warranted, we can schedule another meeting to sit down and discuss any of the above requirements with you and/or your staff. Please contact me, or Holland Shepherd, or Tony Gallegos if we can answer any questions you may have in this regard.

Sincerely,

A handwritten signature in cursive script that reads "D. Wayne Hedberg". The signature is written in dark ink and is positioned above the printed name.

D. Wayne Hedberg  
Permit Supervisor  
Minerals Regulatory Program

attachment

jb

cc: Bob Bayer, JBR  
Lowell Braxton, DOGM  
Minerals staff (route)

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